

Electricity and Magnetism:

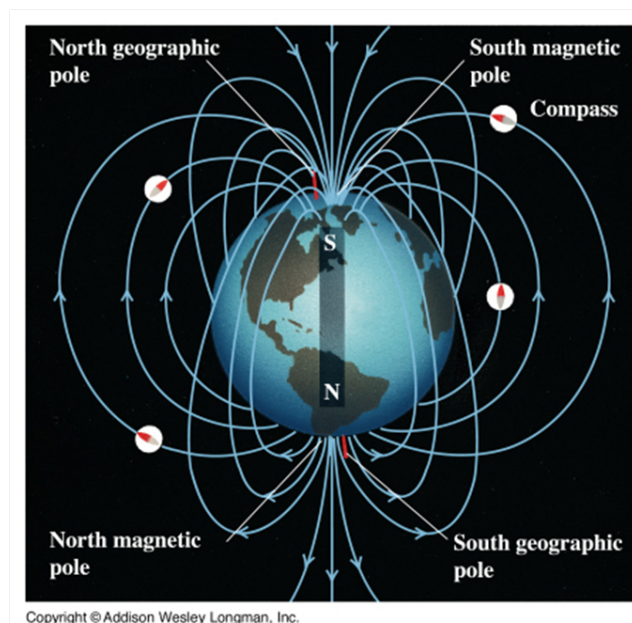
- Magnetism:

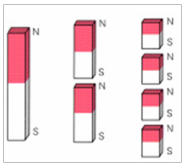
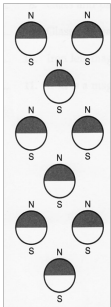
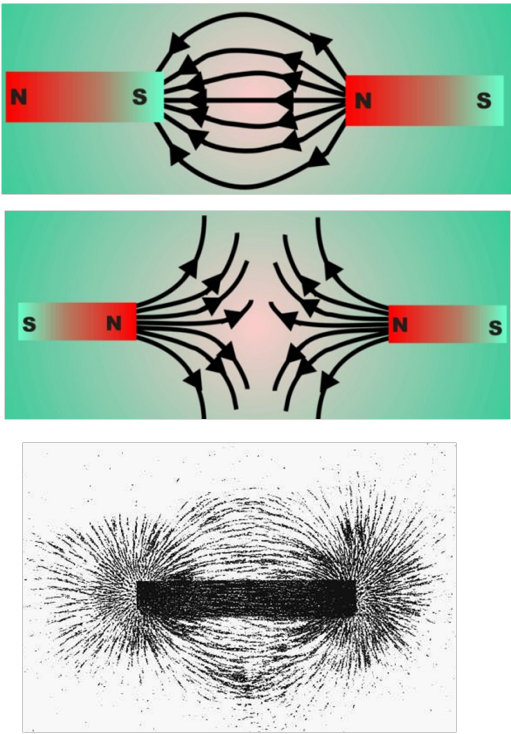
- A magnet is an object that produces a magnetic field.

- Magnets can be natural or man-made

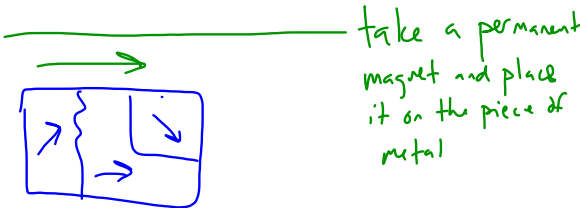
1 H	<div><div><div>Ferromagnetic</div><div>Antiferromagnetic</div><div>Paramagnetic</div><div>Diamagnetic</div></div></div>																2 He						
3 Li	4 Be																	5 B	6 C	7 N	8 O	9 F	10 Ne
11 Na	12 Mg																	13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr						
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe						
55 Cs	56 Ba	57 La	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn						
87 Fr	88 Ra	89 Ac																					
			58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu							

- Naturally Magnetic Elements:
 - Nickel
 - Iron
 - Cobalt
 - Gadolinium (Gd)



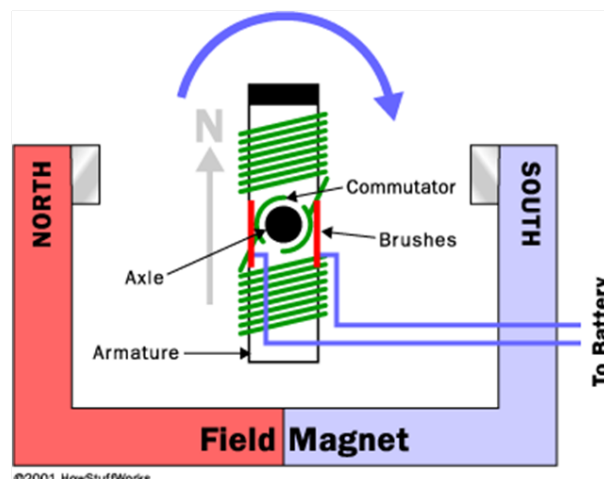
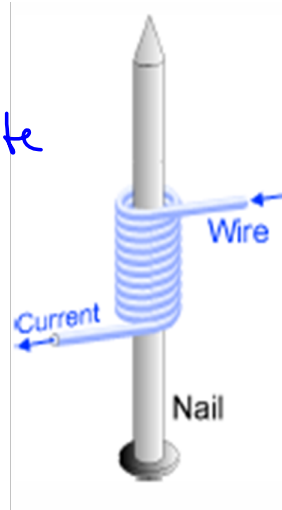


- Magnets ALWAYS exist as dipoles. (Always must have a north and a south.)
- When atoms are aligned, a strong magnetic field is formed.



- Magnet Properties:
 - All magnets have 2 poles (dipoles)
 - Monopoles do NOT exist in magnets (as of now...), but they do exist in electricity.
 - Like charges repel, opposite charges attract.
- Permanent Magnets:
 - Substances that are magnetic all the time.
 - Change other substances into magnets by rubbing permanent magnets on them.
- Magnetic Fields:
 - Analogous to electric fields
 - Causes interactions between magnets
 - Arrows point from north pole to south pole
 - Lines closer together mean a stronger field

- Electromagnets:
 - Use a wire to create a magnet → put loops in the wire
 - This works because moving electrons create both an electric and magnetic field.
 - Strength depends on ...
 - Wire size
 - Number of loops → more loops, higher field strength
 - Amount of current → more current, more field strength
 - Inserting an iron core



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